

Passenger Rail Corridor Study Tucson to Phoenix

EVALUATION METHODOLOGY REPORT

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1.0 Introduction

This document outlines the evaluation process that will be used to develop a range, or “universe”, of alternatives and advance them through successive steps of progressively refined criteria to identify a Locally Preferred Alternative (LPA) for the ADOT Passenger Rail Corridor Study (APRCS). Six evaluation categories have been identified within which progressively more detailed criteria will be applied over the course of the three-tier evaluation process. Proposed criteria identified in this document are specified based on preliminary needs, but they will be refined over the course of the work as appropriate, depending on data availability and project needs. This document includes details of the Level 1 Evaluation Process (the Initial Screening) and outlines the approach for the Levels 2 and 3 evaluations.

The *Range of Alternatives Technical Memorandum* (April 2012) details the process used to develop the range of reasonable alternatives that are able to meet the project Purpose and Need. This is a working document and will be updated as the study progresses.

2.0 Project Overview

This project focuses on intercity and commuter mobility between the Tucson and Phoenix metropolitan areas, including Maricopa, Pima, and Pinal Counties. ¹ The purpose of the project is to help develop a program to address identified future system capacity deficiencies, limitations in modal choice of travel, and a growing unpredictability and inefficiency in the transportation system. The project purpose is to:

- Increase efficient access to employment opportunities and activity centers in Maricopa, Pima, and Pinal counties;
- Provide reliable travel times and safe travel in a congested environment, as forecast in several previous studies;
- Recommend an alignment(s) and technology to connect suburban and rural areas located adjacent to and between the Tucson and Phoenix metropolitan areas; and
- Facilitate continued development of a comprehensive, multimodal and interconnected regional/multi-regional transportation network that offers effective mobility choices for current and future needs, ensuring that better connectivity to other systems beyond the Tucson to Phoenix corridor can be achieved.

Statewide, Arizona’s population is projected to more than double in the next 40 years, from 6.4 million to 16 million, with most of the increase resulting from growth in the Sun Corridor, the area extending from Nogales to Prescott, specifically in the Tucson to Phoenix corridor. By 2050, the area between Tucson and Phoenix will be

¹ The definitions of “commuter” and “intercity” rail have been developed in cooperation with the two federal lead agencies. The full definition can be found in the Project Initiation Package.

characterized by dense employment and population centers in and around the Tucson and Phoenix metropolitan areas and similar population and employment centers throughout Pinal County. Given the current travel demands and projected growth, there is a clearly demonstrated need in the corridor for a major transportation facility to address existing and anticipated unpredictability and inefficiency in the transportation system as well as limitations in modal choice of travel and future system capacity deficiencies. Specifically, as the region evolves there will be explicit and overlapping commuter and intercity needs, as defined below.

- **Commuter Need:** The need for commuter rail is defined by existing and anticipated travel patterns and demand, growing congestion on the highway network as a result of population and employment growth in the urban areas. There are also land use and economic development trends that, over time, will extend beyond the current urban boundaries of Tucson and Phoenix into a single megalopolis.
- **Intercity Need:** The need for intercity rail between Tucson and Phoenix is defined by increasing demand along major highways in the corridor, limited alternative passenger service between the two major urban centers in the State, growing travel times as a result of growing population and employment and the resulting congestion in the corridor, reduced travel time reliability and the need to manage land use and economic development trends.
- **Commuter and Intercity Common Need:** During the scoping process, respondents expressed a desire for both commuter and intercity service. In both agency and public scoping, many participants independently suggested co-locating intercity and commuter service (express and local) to utilize one corridor with multiple operating plans.

3.0 APRCS Evaluation Process

The APRCS will employ a three-tiered evaluation process designed to progressively refine the proposed alternatives under consideration between Tucson and Phoenix. Each level of the evaluation process will be incrementally more detailed, either by adding new criteria, progressively more refined definitions of the same criteria, or removing criteria no longer useful in differentiating performance to assess each remaining alternative more comprehensively than at the previous level. Based on the early stages of the study process, which identified all potential alignments and stations, alternatives will be developed that identify system hubs and a path between the two major urban areas in the corridor.

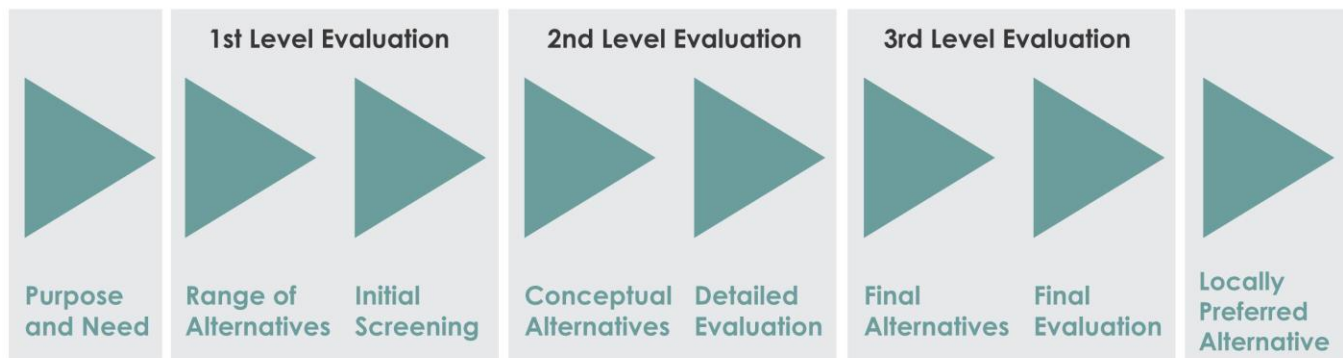
Throughout the Alternatives Analysis (AA) process, the evaluation methodology will guide the analysis needed to identify the LPA. At the first level, initial screening, the analysis was designed to identify a set of complete corridor alternatives. A complete corridor alternative comprises three elements that were assessed independently in the initial screening:

1. Alignment
2. Stations locations (including system hubs, regional stations, and local stations)
3. Service type (mode, connections)

The Level 1 evaluation assessed the individual elements in the range of alternatives. The remaining elements were combined, or “bundled”, into full alternatives consisting of alignment, stations, and service type. At this first level, the criteria were general, although the initial screening criteria used both quantitative measures and qualitative assessments, including input from the public, agencies and professionals with pertinent expertise. The Level 2 evaluation of the bundled or “conceptual alternatives” will study full alternatives at a higher level of detail, and potentially with additional criteria, and cover specific alternative characteristics as part of a complete assessment that will compare the performance of the alternatives against each other. At the Level 3 evaluation of final alternatives, the criteria will be more detailed and the alternatives to be evaluated will also be the basis of the Tier 1 EIS. The AA will provide information that can facilitate preparation of the environmental document, but will remain at a planning level consistent with the conduct of an AA. Figure 1 outlines the alternatives development and evaluation process.

As identified in the Project Overview, the alternatives address both intercity and commuter service throughout the corridor. The evaluation process will utilize both FRA and FTA approaches to the alternatives evaluation to ensure both service types and all reasonable possibilities are considered in the AA.

Figure 1 - Evaluation Process



3.1 Project Evaluation Categories

During this study, the performance of each alternative will be assessed on the basis of criteria within the following six evaluation categories:

1. Community Acceptance – compatibility of an alternative with local development or plans and public response. This category responds to the Purpose and Need in that it provides an alternative means to access employment, residential and other land uses in the corridor.
2. Environment – effect of the project alternative on the environment, including the effect on sensitive species or habitat, cultural resources, and disadvantaged populations. This category, while not specifically mentioned in the Purpose and Need, is an underlying precept of good planning to minimize

the impacts of the alternatives, reducing overall energy consumption, and improving air quality, minimizing impact on sensitive resources, etc. within the corridor.

3. Financial Feasibility – cost to build and operate the alternative, funding availability, ridership, constructability, rights-of-way, operating costs, partnership arrangements. This category responds to the Purpose and Need by ensuring efficient use of resources in providing for alternative modes of travel, including consideration of new technologies as appropriate.
4. Operational Characteristics – operational questions that need to be addressed to ensure the alternative can be implemented (e.g., if the alternative shares right-of-way with a private operator, can an accommodation be found to permit effective use of the corridor for passenger travel when it's needed?) This category provides for the reliable and safe travel expectations outlined in the Purpose and Need.
5. Mobility – contribution of the alternative to improving passengers' ability to travel the corridor. The criteria in this category address accessibility and mobility for corridor residents, employees and visitors consistent with the Purpose and Need objective to efficiently access employment and other activity centers.
6. Safety – level of safety of each alternative compared to the others and to existing and future anticipated conditions. This category responds to the Purpose and Need by evaluating for safe travel options in the corridor.

Each of these categories will be used throughout the AA in evaluating each alternative, with progressively detailed criteria as the alternatives become more refined.

3.2 Level 1 Evaluation Criteria – Initial Screening

The Level 1 screening criteria were tailored to evaluate the critical required features of the three project elements:

- **Alignments:** Initial screening of the alignments provides a fatal flaw and/or risk assessment that helps select routes that best meet the project Purpose and Need.
- **Stations:** Both system hubs and intermediate stations were screened utilizing a tiered ranking process of a station's ability to meet expected performance requirements. The stations were evaluated to select potential system hubs and intermediate station locations, either regional or local. The performance of a commuter or intercity station was defined by the station area and its context as it relates to the Purpose and Need.
- **Modes:** Service types, or modes, were screened utilizing both a quantitative and qualitative comparison of the choices available with consideration of adopted transportation plans for the area

such as the Transportation improvement Program (TIP), the Long Range Transportation Plan (LRTP), local General Plan Transportation Elements or other relevant information that helped assess the significance of each modal option.

The result of the Level 1 initial screening evaluation is a set of complete alternatives, each consisting of alignment, stations and mode. Since this is a fatal flaw, preliminary assessment, not all project evaluation categories are used with all project elements in defining the conceptual alternatives.

3.2.1 Alignment Screening Criteria

For purposes of the initial screening, each alignment was a composition of multiple segments identified from previous studies, as shown by colors in Figure 2. The segments were assessed independently and those that performed most effectively against the initial screening criteria were combined to form a complete alignment joining the two major identified system hubs. Segments recommended for elimination in initial screening were used to complete other alignments if they offered an access opportunity not otherwise available. The criteria and corresponding measures for the Level 1 screening evaluation of alignments are detailed in Table 1.

Figure 2 – Alignment Segments

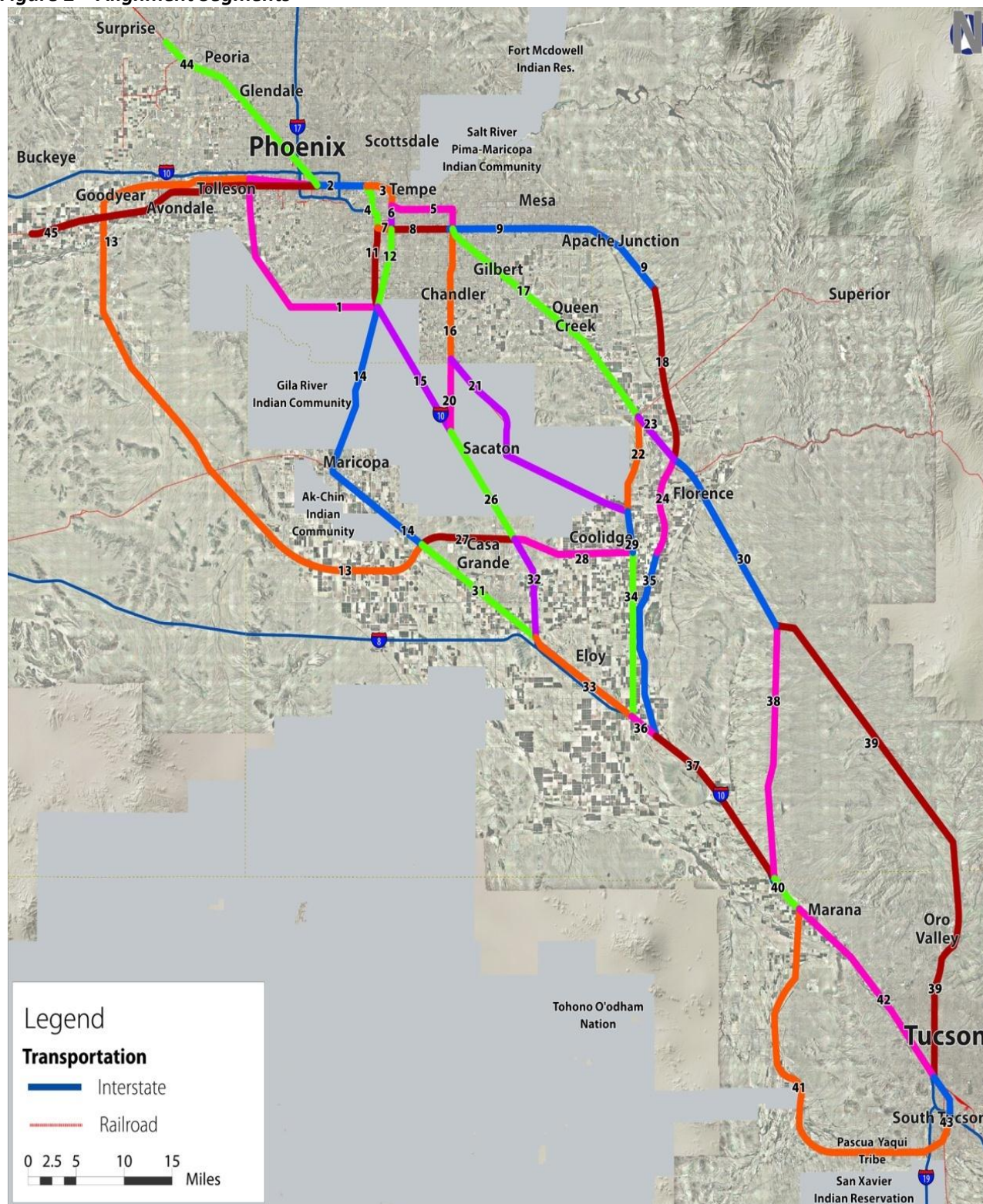


Table 1 – Alignment Level 1 Screening Evaluation Criteria

Category	Criteria	Measures
Community Acceptance	Criterion 1C-1: Compatibility with Existing and Future Land Use - Fits with existing and adopted local land use	<ul style="list-style-type: none"> Percent of existing or entitled residential and employment land uses in the proposed corridor alignment (build in available developable areas) Percent of future residential or employment land uses in the proposed corridor alignment
	Criterion 1C-2: Institutional Considerations - Assessment of jurisdictional issues	<ul style="list-style-type: none"> Percent in National Monuments, National Parks, or Military Areas (<i>requires Congressional approval & potential 4(f) considerations</i>) Percent in Tribal Lands (<i>requires Tribal approval</i>) Percent in existing or future parks/ preserves, wilderness areas, areas of critical environmental concern, (State, Regional, or Local) or Game and Fish (<i>potential 4(f) considerations</i>) Percent in Federal Lands (BLM or Bureau of Reclamation) (<i>requires Federal approval</i>) Percent in State Trust Land, city or county lands (<i>advantage</i>)
Environment	Criterion 1E-1: Infringement upon Sensitive Environments - Minimize impact(s) on sensitive environments	<ul style="list-style-type: none"> Length of segment in identified biological resource documentation Number of resources listed on National Register of Historic Places within alignment segment
Operational Characteristics	Criterion 1O-1: Use of Existing Transportation or Utility Corridors - Minimizes impact by relying on existing transportation or utility corridor	<ul style="list-style-type: none"> Portion of alignment in existing or planned rail corridor Portion of alignment in existing or planned road corridor Portion of alignment in existing or planned utility corridor
Financial Feasibility	Criterion 1F-1: Length of Alignment - Assessment of alignment length	<ul style="list-style-type: none"> Total length which has implications for environmental sensitivity, cost, ridership, etc.

3.2.2 Station Screening Criteria

System hubs and intermediate stations were screened using a tiered ranking process of station attractiveness based on demographics (travel market potential) and transportation connections. The Level 1 screening evaluation used relevant measures for each criterion.

For purposes of the Level 1 initial screening evaluation, all potential stations which were identified during Scoping, previous studies, and subsequent analysis are shown in Figure 3. The evaluation of each of these locations was based on the effect within larger station areas, as shown in Figure 4, and was designed to reflect differences in commuter and intercity catchment areas. Station area criteria are detailed in Table 2.

Figure 3 – Potential Station Locations

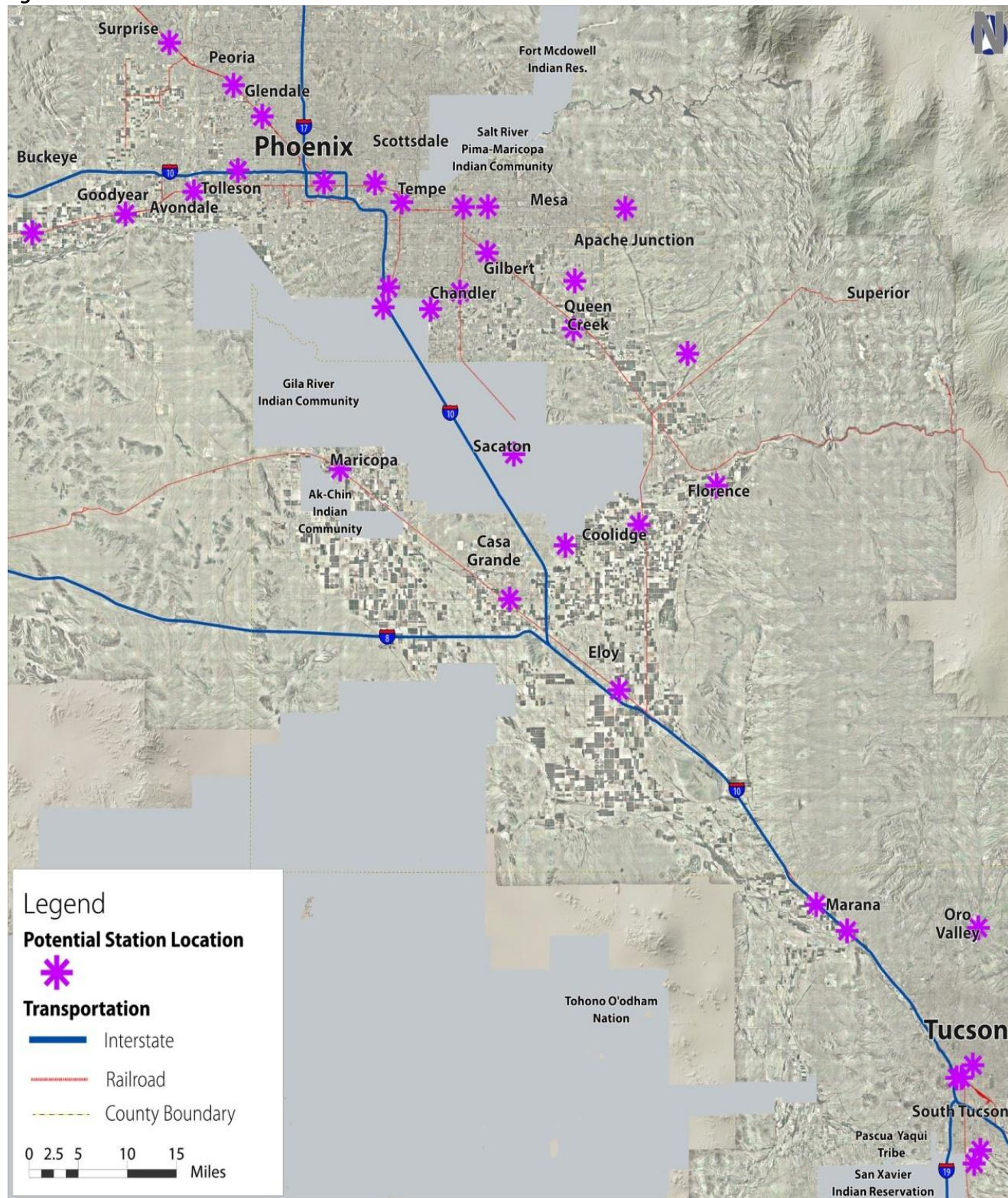


Figure 4 – Example Station Catchment Area

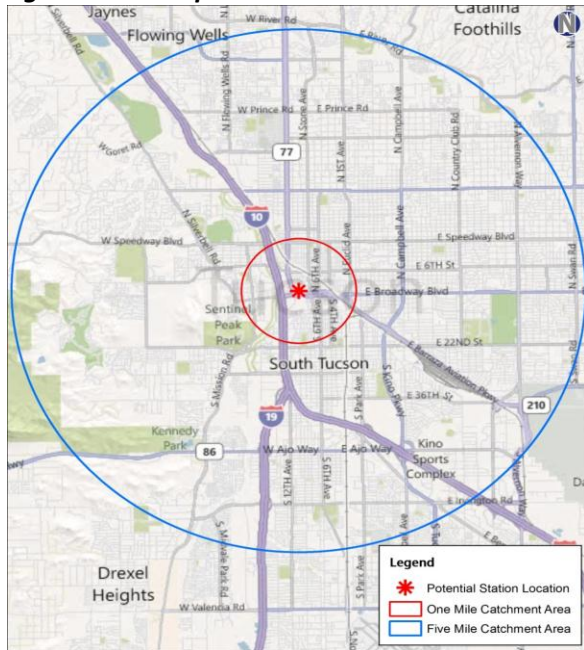


Table 2 – Station Level 1 Screening Evaluation Criteria

Category	Criteria	Measures
Mobility	Criterion 1M-1: Travel Markets - Evaluate station area demographics	<ul style="list-style-type: none"> Proximity to areas of greatest ridership potential including existing and future population and employment Multiple sized catchment areas for potential intercity and commuter
	Criterion 1M-2: Transportation Connections - Inventory connections from the station	<ul style="list-style-type: none"> Pedestrian, Bicycling and Local Street Connections Fixed Guideway Transit Connections (Metro Light Rail & Streetcar) Other Transit Connections (Number of Bus Routes) Freeway Connections (Number within one mile of station) Distance to common carrier aviation airport

3.2.3 Modal Element: Service Type

Service types were screened utilizing measurements of cost, environmental impact and energy use. In some cases, the existence of reliable and recent information about one or more modes was also used to determine if a mode should be carried forward into more detailed analysis. The initial screening is a very high level comparison of available modes based on the following measurements:

- Cost per Mile (Capital and Operating)
- CO2 Emissions
- Energy Use, and
- Implementation Status (built, planned, programmed)

3.3 Level 2 Evaluation Criteria – Conceptual Alternatives

The resulting set of bundled alternatives will be subjected to an evaluation on a full alternative basis. The Level 2 evaluation criteria will be applied to the entire alignment, station and mode bundles for comparison, which requires that criteria be refined to more directly address the characteristics of a full alternative. Where appropriate, the criteria will be applied separately to commuter and intercity services to permit independent assessments of each.

The measures in Table 3 are proposed to be used in the assessment of the Level 2 evaluation. The results of the Level 2 evaluation will be 2 or 3 final alternatives (in addition to the No Build and Baseline alternatives) to be advanced for further evaluation and as the basis of a Tier I Environmental impact Statement (EIS).

Criteria shown in Table 3 show no proposed weighting. Measures can be weighted to indicate a greater influence over corridor conditions that determine the project's effectiveness. At the conclusion of the Level 2 evaluation a set 2 to 3 Final Alternatives will be selected for a detailed evaluation to be conducted in Level 3.

Table 3 –Level 2 Screening Evaluation Criteria

Category	Criteria	Measures
Community Acceptance and Accessibility	Criterion 2C-1: Compatibility with Local Plans - Effect of the alternatives on existing or proposed plans within the corridor.	<ul style="list-style-type: none"> Compatible (C): the route is identified in the local plans and the plans are consistent with the intent of the project Compatible with Difficulties (D): the route is not entirely reflected in local plans but may not create significant complications Incompatible (I): the route impacts an already built condition and is not reflected in local plans
	Criterion 2C-2: Compatibility of Alignment with Underlying Property Ownership – Level of alternative negotiation required with independent agencies/ nations/ companies.	<ul style="list-style-type: none"> Compatible (C): the route is compatible with existing property ownership Compatible with Difficulties (D): portions of the route are incompatible with existing property ownership and/or all or part of the route is partially compatible with existing property ownership Incompatible (I): the route is incompatible with existing property ownership
	Criterion 2C-3: Compatibility of Station Areas - Compatibility of local community station area development/ plans with transit supportive urban design principles.	Numerical score based on Transit Receptivity Analysis in the Community Readiness Assessment
	Criterion 2C-4: Populations Served – Existing and future population with access to station area, existing and future employment within ½ mile of a station, and existing environmental justice populations within 5 miles of station.	<ul style="list-style-type: none"> People/square mile within station tributary area using AZTDM current year data by TAZ Employment within ½ mile using AZTDM current year data by TAZ People/square mile station tributary area using AZTDM future year data by TAZ Employment within ½ mile using AZTDM future year data by TAZ Minority and low-income population (number of people) within 5 miles of stations using AZTDM data by TAZ

Category	Criteria	Measures
Environmental	Criterion 2E-1: Potential Environmental Effects – Sensitive noise receptors which may be impacted by noise, residences which may be impacted by noise, historic/cultural/ archeological resources, wetlands/flood plains/rivers/ washes/arroyos, wildlife corridors and biological resources which may be affected.	<ul style="list-style-type: none"> • Number of second level sensitive noise receptors within 1 mile of route centerline • Number of residences within 1 mile of route centerline • Number of historic/cultural/ archeological resources registered with the State Historic Preservation Office within 1/2 mile of route centerline • Wetlands/flood plains (in acres) and rivers/washes/arroyos (in linear feet) within 1/2 mile of route centerline • Number of wildlife corridors crossed as identified in the Arizona Missing Linkages report prepared by Arizona Fish and Game Department • Quantify biological resources within 1/2 mile of centerline based on six-point scale using the Arizona Game and Fish Department "Species and Habitat Conservation Guide"
Financial Feasibility	Criterion 2F-1: Annual Operating Costs: Bus, Commuter Rail and Intercity Rail annual operating costs	<ul style="list-style-type: none"> • Operating cost/year for bus portion of service (in 2012 dollars) • Operating cost/year for commuter rail portion of service (in 2012 dollars) • Operating cost/year for intercity rail portion of service (in 2012 dollars)
	Criterion 2F-2: Capital Costs: Bus, Commuter Rail and Intercity Rail capital costs including track, stations, rolling stock, maintenance yard	<ul style="list-style-type: none"> • Capital costs for bus improvements (in 2012 dollars) • Capital costs for commuter rail (in 2012 dollars) <i>(portion of capital costs should be proportional to % of commuter rail ridership)</i> • Capital costs for intercity rail (in 2012 dollars) <i>(portion of capital costs should be proportional to % of commuter rail ridership)</i>
	Criterion 2F-3: Right-of-Way Costs: Estimated cost based on 2012 dollars/square foot	Cost based on ROW costs for the following conditions: % CBD, % Urban, % Suburban, % Rural

Category	Criteria	Measures
	Criterion 2F-4: Ease of Implementation: Qualitative evaluation of the relative costs of building route including property acquisition, construction challenges, public support, negotiations	<ul style="list-style-type: none"> • High (H): minimal costs related to property acquisition and construction with general public acceptance/support • Moderate (M): moderate costs related to property acquisition and construction potentially with some challenges related to public acceptance/support • Low (L): Significant costs related to property acquisition and construction with some challenges related to general public acceptance/support
Operating Characteristics	Criterion 2O-1: Predictability/Dependability: Anticipated reliability of route compared to baseline condition using factors from other operations around the country	<ul style="list-style-type: none"> • High (H): high level of reliability on corridor including limited impacts from other transportation modes and weather conditions • Moderate (M): moderate level of reliability on corridor including potential impacts from other transportation modes and weather conditions • Low (L): low level of reliability on corridor including the potential for significant impacts from other transportation modes and weather conditions
Mobility	Criterion 2M-1: Ridership Potential: Annualized commuter trips and intercity trips.	<ul style="list-style-type: none"> • Annual commuter ridership (based on TDM) • Annual intercity ridership (based on TDM)
	Criterion 2M-2: Travel Time– Estimated travel time.	<ul style="list-style-type: none"> • Travel time in minutes based on average travel speeds
Safety	Criterion 2S-1: Potential Rail/Highway Conflicts: Number of at-grade crossings.	<ul style="list-style-type: none"> • Number of at-grade crossings or improvements needed • Rail/Vehicle Factor

3.4 Level 3 Evaluation Criteria – Final Alternatives

The Final Alternatives will result from the analysis completed in Level 2. Once identified, the Final Alternatives will serve as the foundation for the Tier I EIS that will run concurrently with the final phase of the AA. In Level 3, the analysis will rely on many of the same criteria at a more detailed level of development (e.g., conceptual design for features in the corridor, more emphasis on identifying environmental impacts, direct ridership forecasts from the AZTDM travel demand model, etc.) and, if necessary, could introduce additional criteria that would address special requirements of the study.

Table 4 –Level 3 Screening Evaluation Criteria

Category	Criteria	Measures
Community Acceptance and Accessibility	Criterion 3C-1: Compatibility with Local Plans - Effect of the alternatives on existing or proposed plans within the corridor.	<ul style="list-style-type: none"> Compatible (C): the route is identified in the local plans and the plans are consistent with the intent of the project Compatible with Difficulties (D): the route is not entirely reflected in local plans but may not create significant complications Incompatible (I): the route impacts an already built condition and is not reflected in local plans
	Criterion 3C-2: Compatibility of Alignment with Underlying Property Ownership – Level of alternative negotiation required with independent agencies/nations/ companies.	<ul style="list-style-type: none"> Compatible (C): the route is compatible with existing property ownership Compatible with Difficulties (D): portions of the route are incompatible with existing property ownership and/or all or part of the route is partially compatible with existing property ownership Incompatible (I): the route is incompatible with existing property ownership
	Criterion 3C-3: Compatibility of Station Areas - Compatibility of local community station area development/ plans with transit supportive urban design principles.	Numerical score based on Transit Receptivity Analysis in the Community Readiness Assessment
	Criterion 3C-4: Populations Served Ensure alternative serves major population and employment centers and low income or other environmental justice households	<ul style="list-style-type: none"> People/square mile within station tributary area using AZTDM current year data by TAZ Employment within ½ mile using AZTDM current year data by TAZ People/square mile station tributary area using AZTDM future year data by TAZ Employment within ½ mile using AZTDM future year data by TAZ Minority and low-income population (number of people) within 5 miles of stations using AZTDM data by TAZ
Environment	Criterion 3E-1: Environmental	<ul style="list-style-type: none"> Number of second level sensitive noise

Category	Criteria	Measures
	Effects – Sensitive noise receptors which may be impacted by noise, residences which may be impacted by noise, historic/cultural/ archeological resources, wetlands/flood plains/rivers/ washes/arroyos, wildlife corridors and biological resources which may be affected.	<p>receptors within 1/2 mile of route centerline</p> <ul style="list-style-type: none"> • Number of residences within 1/2 mile of route centerline • Air quality effects based on travel demand model output • Number of historic/cultural/ archeological resources registered with the State Historic Preservation Office within 1/2 mile of route centerline • Wetlands/flood plains (in acres) and rivers/washes/arroyos (in linear feet) within 1/2 mile of route centerline • Number of wildlife corridors crossed as identified in the Arizona Missing Linkages report prepared by Arizona Fish and Game Department • Quantify biological resources within 1/2 mile of centerline based on six-point scale using the Arizona Game and Fish Department "Species and Habitat Conservation Guide"
	Criterion 3E-2 Energy Consumption	<ul style="list-style-type: none"> • Measure energy cost per rider for each alternative
	Criterion 3E-3: VMT/VHT/VHD Reduction - Measure reduction in congestion as evidenced by the ability of each alternative to reduce congestion measures.	<ul style="list-style-type: none"> • Quantify measures of congestion using transportation modeling output.
Financial Feasibility	Criterion 3F-1: Annual Operating Costs (for bus, commuter and intercity)	<ul style="list-style-type: none"> • Preliminary cost based on proposed operation to of each alternative (i.e., frequency, capacity, etc.)

Category	Criteria	Measures
	Criterion 3F-2: Capital Costs (for bus, commuter and intercity)	<ul style="list-style-type: none"> Preliminary cost, based on conceptual design, to build the alternative
	Criterion 3F-3: Cost Effectiveness	<ul style="list-style-type: none"> Estimated annualized capital and operating cost to construct and operate the bus, commuter and intercity service based on Criteria 3F-1 and 3F-2 and the results of ridership forecasts in 3M-1.
	Criterion 3F-4: Travel Cost/Fare (for bus, commuter and intercity)	<ul style="list-style-type: none"> Estimated cost to complete a trip based on assumptions about the types of service to be offered (i.e., level of subsidy, quality of service, etc.)
	Criterion 3F-5: Rights-of-Way Costs	<ul style="list-style-type: none"> Cost of property acquisition for each alternative based on researched sq ft costs in CBD, urban, suburban and rural environments
	Criterion 3F-6: Ease of Implementation	<ul style="list-style-type: none"> Degree of difficulty expected to build and implement each alternative with a focus on the critical system features for each of the Final Alternatives. This is a general qualitative measure relating property acquisition, negotiations, construction challenges, public support/objection, etc. for each alternative.
Operational Characteristics	Criterion 3O-1: Predictability/Dependability	<ul style="list-style-type: none"> Anticipated reliability of service (e.g., average on-time performance) compared to historical travel within the corridor for each alternative and using comparable service information from other systems around the country
	Criterion 3O-2: Connection to Larger Southwest Regional Network	<ul style="list-style-type: none"> Utility of each alternative in the context of its contribution to Southwestern regional service opportunities as measured by directness of connection to other intercity services. (e.g., additional ridership resulting from a connection to the larger regional system.)

Category	Criteria	Measures
Mobility	Criterion 3M-1: Ridership Potential: Annualized commuter trips and intercity trips.	<ul style="list-style-type: none"> Annual commuter ridership (based on TDM) Annual intercity ridership (based on TDM)
	Criterion 3M-2: Corridor Linkages	<ul style="list-style-type: none"> The number and quality (excellent, good, fair, poor) of connections to the alternative available through local transit services and other facilities.
	Criterion 3M-3: Travel Time Saving – compared to other alternatives	<ul style="list-style-type: none"> Estimated corridor end-to-end (or selected stations) travel time savings. The total travel time from one end of an alternative to the terminal station, or between specific zone pairs, for each alternative.
Safety	Criterion 2S-1: Potential Rail/Highway Conflicts: Number of at-grade crossings.	<ul style="list-style-type: none"> Number of at-grade crossings or improvements needed Rail/vehicle factor
	Criterion 3S-2: Collision Reduction	<ul style="list-style-type: none"> Estimated reduction in automobile collisions on parallel roadways for each alternative
	Criterion 3S-3: Proximity of other passenger or freight services	<ul style="list-style-type: none"> Distance from other rail or highway operations

The application of the Level 3 evaluation criteria will provide for a detailed analysis of the Final Alternatives. At the conclusion of the Level 3 evaluation, a Locally Preferred Alternative will be selected.

4.0 Summary

The Level 1 evaluation is a fatal flaw overview of the elements that make up possible alternatives in the corridor. Each alternative element (i.e., alignment segments, stations and modes) will be assessed on its own merits as a candidate to be included in a complete alternative. Because they are independently evaluated, the criteria do not necessarily conform to the criteria applied to full alternatives in the Level 2 and 3 evaluations. The best elements in Level 1 will be combined to form conceptual alternatives for corridor-wide evaluation. While Level 2 and 3 evaluations are similar in terms of the criteria to be used, they vary in the level to which the criteria are

developed and the results compared. Level 2 evaluation will remain at a high level, with information collected in sufficient detail to address general questions and make basic comparisons among the alternatives. At the end of the Level 2 evaluation, Final Alternatives will be selected for Level 3 analysis. Level 3 will develop more detailed information for the criteria to be used to compare the Final Alternatives. At the end of Level 3, a recommendation for a Locally Preferred Alternative will be formulated.